

TECHNICAL REVIEW DOCUMENT
For
RENEWAL / MODIFICATION TO OPERATING PERMIT 96OPMR153

Brush Cogeneration Partnership
Morgan County
Source ID 0870027

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November 2006 and February 2008
Revised April, October and December 2008

I. Purpose:

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewal and modification of the Operating Permit for the Brush Cogeneration Partnership facility. The current Operating Permit for this facility was issued on January 1, 2005 and expires on January 1, 2010. Prior to submittal of the renewal application, the source had submitted an application on March 22, 2006 to revise their Title V permit to set higher alternative BACT limits for startup and shutdown. Since this modification changes a case-by-case emission limitation, this modification must be processed as a significant modification as required by Colorado Regulation No. 3, Part C, Section I.A.7.c. A significant modification must go through a 30-day public comment period and EPA 45-day review period. Therefore, since the renewal application has been submitted the Division is incorporating the modification with the renewal.

This document establishes the decisions made regarding the requested modifications to the Operating Permit for the Brush Cogeneration Partnership facility. This document provides information describing the type of modification and the changes made to the permit as requested by the source and the changes made due to the Division's analysis. This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the information provided in the request for modification submitted to the Division on March 22, 2006, the renewal application submitted on July 30, 2008, additional information submitted on December 5, 2007, comments on the draft permit submitted on May 14, 2008, various e-mail correspondence and telephone conversations with the source. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a

combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This facility consists of a cogeneration facility defined under Standard Industrial Classification 4911. One combustion turbine, which is equipped with a heat recovery steam generator (HRSG) and duct burner, produces electricity for sale. This combustion turbine/HRSG/duct burner is part of the Brush Cogeneration Facility. A separate Operating Permit has been issued for each operating company, however, for permitting purposes the Brush Cogeneration Facility is considered one stationary source. The combustion turbine serves a generator rated at 32 MW and is equipped with a dry low NO_x combustion system to reduce NO_x emissions. Waste heat from the combustion turbine flows through the HRSG (equipped with a duct burner to provide additional heat) to generate steam, which is used to drive a steam turbine (39 MW) to generate additional electricity. The waste heat from the HRSG can also provide thermal energy to heat a local greenhouse complex. A diesel-fired internal combustion engine is used to start the turbine. In addition, there is a cooling tower at the facility, which has emissions above APEN de minimis levels, and is therefore considered a significant emission unit and is included in Section II of this permit. The turbine at this facility is referred to as Brush 2 or GT-3.

Previously, three natural gas-fired auxiliary boilers were addressed in this permit. The auxiliary boilers were used to provide heat to the greenhouse when waste heat from the turbine/duct burner is not available or inadequate to meet the demand. However, in August 2007, the auxiliary boilers were bought by a third party and are addressed in a separate operating permit.

The facility is located in a 90 acre industrial area shared with the greenhouse and is just south of Brush. The area in which the plant operates is designated as attainment for all criteria pollutants.

There are no affected states within 50 miles of the plant and there are no Federal Class I designated areas within 100 kilometers of the plant.

The summary of emissions that was presented in the Technical Review Document (TRD) for the original permit issuance has been modified to more appropriately identify the potential to emit (PTE) since modifications have been made to the Brush Cogeneration Partnership (BCP) emission units, as well as the other emission units at the Brush Cogeneration Facility. Emissions (in tons/yr) at the facility are as follows:

Emission Unit	PM	PM ₁₀	SO ₂	NO _x	CO	VOC	HAPS
BCP – Turbine*	5.1	5.1	1.2	105.7	44	32	See Table on Page 14
BCP – Duct Burner							
BCP - Engine							
BCP – Cooling Tower	4.4	4.4					
BCP Total Emissions	9.5	9.5	1.2	105.7	44	32	4.14
CPP – Turbines*	5	5	3.4	134	147.5	24.2	See Table on Page 14
CPP – Duct Burners							
CPP – Engines							8.02
CPP – Cooling Tower	2.5	2.5					
CPP Total Emissions	7.5	7.5	3.4	134	147.5	24.2	
BIV – Turbines**	9.71	9.71	2.79	60	120	22.38	See Table on Page 14
BIV – Duct Burners							
BIV – Cooling Towers	6.87	6.87					
BIV Total Emissions	16.58	16.58	2.79	50	120	22.38	6.12
Brushco – Boilers				5	4.2		See Table on Page 14
Brushco – Boilers				11.5	9.7		
Brushco Total Emissions				16.5	13.9		0.32
Facility Total Emissions	33.58	33.58	7.39	316.2	325.4	78.58	18.60

*permitted emissions for the turbine(s), duct burner(s) and starter engine(s) is a combined limit.

**permitted emissions for the turbines and duct burners is a combined limit.

Potential to Emit is based on permitted emission limits. Based on APENs filed for 2005 data (APENs received on March 22, 2006), actual emissions from Brush 2 were as follows: PM – 3.7 tons/yr, PM₁₀ – 3.7 tons/yr, SO₂ – 0.8 tons/yr, NO_x – 75.6 tons/yr, CO – 32.9 tons/yr and VOC 23.1 tons/yr.

The breakdown of HAP emissions by emission unit and individual HAP is provided on page 14 of this document. Since the HAP emissions, on an hourly basis, are higher for the turbines than the duct burners, the HAP PTE is based on the turbines burning all the fuel (fuel consumption limits typically apply to the turbine(s) and duct burner(s) combined). For the BCP turbine, the turbine can run 8760 hrs/yr and there is leftover fuel for the duct burner to operate; therefore, HAP emissions for both the turbine and duct burner were calculated. HAP emissions for all equipment, except the turbines, are based on AP-42 emission factors. For the turbines, HAP emissions are based on the higher emission factor from either AP-42, California Air Toxic Emission Factors (CATEF) or EPA's August 22, 2003 memo on HAP emission factors for turbines.

MACT Requirements

As discussed in the technical review document for the first renewal this facility is considered a major source of HAPS. However, there have been some changes to the relevant MACT requirements since the first renewal was issued; therefore, these updates are being addressed at this time.

RICE MACT (40 CFR Part 63 Subpart ZZZZ)

As discussed in the technical review document for the first renewal, the starter engine that is addressed in Section II of the permit is not subject to the RICE MACT requirements.

However, revisions were made to the RICE MACT to address engines ≤ 500 hp and engines at area sources. These revisions were published in the Federal Register on January 18, 2008. Under these revisions, existing 4SRB, 2SLB, 4SLB and CI engines are exempt from the requirements. For purposes of the MACT, for engines ≤ 500 hp, "existing" means commenced construction or reconstruction before June 12, 2006. There are engines addressed in the insignificant activity list (portable welding unit); however, this engine commenced construction prior to June 12, 2006 and as a result the requirements in the RICE MACT do not apply.

Industrial, Commercial and Institutional Boilers and Process Heaters MACT (40 CFR Part 63 Subpart DDDDD)

The final rule had not been published in the Federal Register at the time the technical review document for the first renewal was initially drafted and the only emission units addressed were the three boilers that are no longer addressed in this permit. Therefore this discussion has been updated.

The final rule for industrial, commercial and institutional boilers and process heaters was signed on February 26, 2004 and was published in the Federal Register on September 13, 2004. There are process heaters included in the insignificant activity list in Appendix A of the permit. Although 40 CFR Part 63 Subpart DDDDD applies, existing (constructed before January 13, 2003) small gaseous fired units are not subject

to any of the requirements in 40 CFR Part 63 Subparts A and DDDDD, including the initial notification requirements (§ 63.7506(c)(3)). The process heaters at this facility that are listed in the insignificant activity list would fall under the existing small gaseous fired unit category and would therefore not be subject to any requirements.

In addition, there is a duct burner associated with the combustion turbine that is considered a significant emission unit. In accordance with the provision in 40 CFR Part 63 Subpart DDDD § 63.7491(c), the provisions in Subpart DDDDD do not apply to electric utility steam generating units (EUSGU), which is a fossil fuel-fired combustion unit of more than 25 MW that serves a generator that produces electricity for sale. A fossil fuel-fired unit that cogenerates steam and electricity, and supplies more than one-third of its potential electric output capacity, and more than 25 MW electrical output to any utility power distribution system for sale is considered an electric utility steam generating unit. The source provided electrical sales data which indicated that in 1996, electrical sales, on an annual average, were more than 25 MW and one-third of its potential electrical output capacity (annual average based on 1994, 1995 and 1996 sales). Therefore, Brush 2 is considered an EUSGU and is not subject to the requirements in 40 CFR Part 63 Subpart DDDDD.

As of July 30, 2007, the Boiler MACT was vacated; therefore, the provisions in 40 CFR Part 63 Subpart DDDDD are no longer in effect and enforceable. The vacatur of the Boiler MACT triggers the case-by-case MACT requirements in 112(j), referred to as the MACT hammer, since EPA failed to promulgate requirements for the industrial, commercial and institutional boilers and process heaters by the deadline. Under the 112(j) requirements (codified in 40 CFR Part 63 Subpart B §§ 63.50 through 63.56) sources are required to submit a 112(j) application by the specified deadline. As of this date, EPA has not set a deadline for submittal of 112(j) applications to address the vacatur of the Boiler MACT. It is not clear whether 112(j) applications would be required for the small process heaters that were affected sources under the Boiler MACT but were not subject to any requirements. Nor is it clear whether 112(j) applications would be required for emission units, such as EUSGUs, which were excluded from the Boiler MACT but are considered affected facilities under the NSPS for industrial-commercial-institutional steam generators. Therefore, the Division has not included a requirement in the permit to submit a 112(j) application. If the Division considers that in the future, a 112(j) application will be required for small units and EUSGUs the source will be notified.

III. Discussion of Modifications Made

Source Requested Modifications

The Division addressed the source's requested modifications as follows:

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In their renewal application the source indicated that the responsible official and permit contact had changed, as a result the responsible official and permit contact were revised.

Starter Engine

The source indicated that there was an error in the description for the starter engine. The information describing the starter engine in the permit was revised as requested.

Based on additional information provided in a November 13, 2006 e-mail, according to the manufacturer's information, the engine is rated at 706 hp and 40.2 gal/hr at sea level, when derated, the engine is rated at 660 hp and 37.5 gal/hr. The emission factors included in the permit for this engine were based on emission factors provided by Cummins for NO_x and VOC. Since the engine is not a Cummins engine, the Division does not consider that it is appropriate to use these emission factors and has included AP-42 emission factors (Section 3.4, dated 10/96, Table 3.4-1) in the permit for those pollutants. In addition, the current permit included AP-42 emission factors from Section 3.3 for PM, PM₁₀ and CO. AP-42 Section 3.3 applies to diesel-fire engines equal to or below 600 hp. In the current permit, the engine was identified as a 600 hp engine; however, the source now indicates that this unit is rated at 660 hp; therefore, the emission factors in Section 3.3 are not appropriate, so they have been replaced with the emission factors in Section 3.4, which apply to engines greater than 600 hp. The AP-42 emission factor and the converted emission factors that will be included in the permit are as follows:

Pollutant	AP-42 Emission Factor (lb/mmBtu)	Converted Emission Factor (lb/Mgal) ¹
PM	0.1	13.7
PM ₁₀	0.1	13.7
SO ₂ ²	1.01S	55.3
NO _x	3.2	438.4
CO	0.85	116.4
VOC ³	0.0820.	11.2

¹AP-42 emission factors were converted to units of lb/Mgal based on a diesel fuel heat content of 137,000 Btu/gal

²The "S" in the emission factor is the weight percent sulfur in the fuel. A value of 0.4 weight percent was used to convert the emission factor (per AP-42, appendix A, September 1985, typical parameters of various fuels, diesel).

³per footnote f in AP-42, Section 3.4 (dated 10/96), Table 3.4-1, TOC is by weight 91% non-methane, so the emission factor is 0.09 lb/mmBtu x 0.91

NSPS Subpart Db NO_x Limit Compliance

In their March 22, 2006 modification application the source requested that the permit be revised to specify that compliance with the NSPS Db NO_x limit for the duct burner be monitored by conducting an annual performance test as specified in paragraph 16 of a Compliance Order on Consent (2004-033, signed June 20, 2005) issued for this facility. The Division considers that it is not appropriate to specify that compliance with a NO_x

limit be monitored through an annual performance test when the emission unit is equipped with a NO_x CEMS. Nevertheless, the Division believe that the NSPS Db limit may be less stringent than the NO_x BACT limits for Brush 2 and if that is the case then the NSPS Db NO_x limit can be streamlined out of the permit in favor of the NO_x BACT limit.

The NSPS Db NO_x limit is 0.20 lb/mmBtu, on a 30-day rolling average. As specified in 40 CFR Part 60 Subpart Db § 60.44b(h), the NO_x limit applies during periods of startup, shutdown and malfunction. The NO_x BACT limits for this unit are 21 and 50 ppmvd (startup and shutdown), all are in units of ppmvd at 15% O₂ and on a 1-hour average. The NO_x BACT emission limitations must be converted to the same units as the NSPS Db limit for comparison. Using EPA Method 19, Equation 19-1, the NO_x BACT limits were converted to units of lb/mmBtu, with the following results 21 ppmvd (0.0774 lb/mmBtu), and 50 ppmvd (0.1842 lb/mmBtu). Both are below the NSPS Db NO_x limit of 0.2 lb/mmBtu; therefore, the Division considers that the NO_x BACT limits are more stringent than the NSPS Db NO_x limit. Therefore, the Division will streamline out the NSPS Db NO_x limit in favor of the NO_x BACT limits.

Note that NSPS Db specifies that for duct burners compliance with the NSPS limits may be demonstrated with a performance test, rather than a NO_x CEMS. NSPS Db specifically states that duct burners are not required to have NO_x CEMS (40 CFR Part 60 Subpart Db § 60.48b(h)). Since the source has demonstrated compliance with the NSPS Db NO_x limit with a performance test, the NSPS Db NO_x CEMS requirements do not apply to the duct burner and therefore need not be considered further for purposes of streamlining.

Other NSPS Db Requirements (Section II, Condition 1.8)

In their May 14, 2008 comments on the draft permit, the source requested that the phrase "for each calendar quarter" be removed from Section II, condition 1.8. The change was made as requested.

Data Acquisition and Handling System (DAHS) Hourly Data Validation

The source requested in their March 22, 2006 application that the permit be revised to specify that hours shall be validated in accordance with the provisions in 40 CFR Part 75 § 75.10(d), as required by paragraph 15 of the Compliance Order on Consent (2004-033, signed June 20, 2005) issued for this facility. The source suggested that language be added to Section II, Conditions 1.4.1 and 1.5.1 to address the valid hour definition. However, the Division considers that this language would be more appropriate to include these requirements in the permit with the CEMS requirements (Section II.4). The Division has included language in the permit in Section II.4 indicating that valid hours shall be determined in accordance with the requirements in § 75.10(d).

In addition, in their comments on the draft permit (received on May 14, 2008), the source requested that language be added indicating that the file format required by Section II, Condition 4.2.5 be either hardcopy, electronic or combination.

DAHS/CEMS Data Quality Assurance/Quality Control (QA/QC)

In their March 22, 2006 application the source included a discussion regarding the specific QA/QC requirements for the CEMS. They indicate that they will use the definition of a valid hour in accordance with the provisions in 40 CFR Part 75 § 75.10(d), which is specified in the Compliance Order on Consent and their application goes on to discuss which QA/QC procedures shall be used, Part 60 or Part 75. Unlike the other Brush Turbines, Brush 2 is not subject to the Acid Rain requirements and therefore, the provisions of Part 75 do not apply. Although Brush 1 (addressed in permit 96OPMR171) is not subject to the Acid Rain requirements, Brush 1 shares a CEMS with Brush 3, which is subject to the Acid Rain requirements; therefore, the NO_x and diluent CEMS for Brush 1 must meet the requirements of Part 75. Since the CEMS for Brush 2 is not required to meet the requirements of Part 75, the Division will not revise the permit to require that Part 75 be followed.

In addition, in their comments on the draft permit (received on May 14, 2008), the source requested that language be added indicating that the file format required by Section II, Condition 4.2.4 be either hardcopy, electronic or combination.

Startup/Shutdown BACT Limits

In their March 22, 2006 application the source requested a revision to their startup and shutdown BACT limits. The current permit includes startup and shutdown BACT limits in units of ppmvd and the source is requesting that a lbs/hr limit be added to the current limit. Under the source's proposed startup and shutdown BACT limit, if the source were out of compliance with the ppmvd limit, the mass emission rate (lbs/hr) for that hour would be compared to the proposed new lbs/hr BACT limit to determine if the unit is out of compliance. In order to be out of compliance, the unit would have to exceed both the ppmvd limit and the proposed new lbs/hr limit. This type of dual startup/shutdown BACT limit has been used for the Ft. St. Vrain turbines. The Division has agreed to include an additional lb/hr limit to the startup and shutdown BACT limits for the units at this facility.

The source requested the lb/hr startup and shutdown limits based on the ppmvd limits for the units, converted to lb/mmBtu based on Method 19, Equation 19-1) and the maximum heat input rate for the unit. The requested lbs/hr limit are shown in the table below:

Existing Limit	Unit Heat Input Rate* (mmBtu/hr)	Requested Limit (lbs/hr)
NO _x S/U & S/D 50 ppmvd @15% O ₂ (0.1842 lb/mmBtu)	590	108.7 lbs/hr
CO S/U 250 ppmvd @ 15% O ₂ (0.5606 lb/mmBtu)	590	330.7 lbs/hr

*heat input rate for turbine and duct burner combined

The source's proposed lb/hr emission limits are based on the maximum heat input rate of the unit; however, the unit may not be at full load during startup and/or shutdown; therefore, the Division does not necessarily agree with the source's method for setting a lb/hr BACT emission limit. The Division prefers to base this number on actual emission data during startup and shutdown periods.

The source did not submit any startup and shutdown emission data with their March 22, 2006 application and the quarterly excess emission reports only provide emission data in units of ppmvd, not lbs/hr. Although, startup and shutdown emission data was submitted in October 2000 to support the addition of startup and shutdown BACT limits for the Brush 1, 3 and 4 turbines and that data included emission data in ppmvd, as well as lbs/hr, the Division cannot use that data. The Brush 2 turbine and the Brush 1, 3 and 4 turbines are different models (General Electric vs. Westinghouse) and utilize different control technologies (dry low NO_x vs. water injection).

Absent any emission data in lbs/hr for the Brush 2 unit and since the definition of startup and shutdown do not rely on the unit operating at maximum load, the Division will not set the lbs/hr limit at the requested level. The definition of startup is based on reaching a gross power output of 40 MW. The total output capacity of this unit is 71 MW (32 MW from the combustion turbine and 39 MW from the steam turbine). Therefore, the Division will base the lbs/hr limit on 60% of the unit's heat input rate, which gives a NO_x limit of 65 lbs/hr and a CO limit of 198 lbs/hr.

The request to revise the startup and shutdown BACT limits will result in an increase in the short-term emission rates during certain operating conditions, which are typically short in duration. Based on past modeling analyses conducted for this facility, these increases are not expected to cause or contribute to a violation of the national ambient air quality standards (NAAQS) or the Colorado ambient air quality standards (CAAQS). In addition, these increases are not expected to have a significant affect on air quality related values (AQRVs). Therefore, revised modeling is not warranted for the revised startup and shutdown BACT limits.

Cooling Tower (Section II.3)

In their May 14, 2008 comments on the draft permit, the source requested that Condition 3.2 be revised to specify that the water circulated would be determined by multiplying the hours of operation of each pump by the design flow rate of the pump and to include the equation used to determine the water circulation rate. The Division has revised the permit as requested.

Insignificant Activity List (Appendix A)

In their May 14, 2008 comments on the draft permit, the source submitted a revised insignificant activity list. This list has been included in the permit.

Acid Rain Requirements

In their June 23, 2008 additional information submittal, the source indicated that the facility had failed to apply for and receive an Acid Rain Permit. In their submittal, the source indicated that although the unit was initially exempt as a cogeneration unit under 40 CFR Part 72 § 72.6(b)(4)(ii); however, in 1996, an annual of average of more than 219,000 MW-hrs and more than one-third of the unit's potential electrical output capacity was sold (annual average is based on 1994, 1995 and 1996 electric sales). Therefore, the source indicated that they should have applied for an Acid Rain Permit by January 1, 1998. It appears that the information in the June 23, 2008 letter was only based upon the cogeneration exemption specified in § 72.6(b)(4)(ii), although there are other exemptions that could potentially apply to the facility. At this time, it appears that this facility is not subject to the Acid Rain Program because it is an independent power production facility that had a qualifying power purchase commitment in place prior to November 15, 1990 and consists of one unit with a total installed net output capacity not exceeding 130 percent of its total planned net output capacity (§ 72.6(b)(6)(i) and (ii)). Although it seems relatively clear that Brush 2 is not subject to the Acid Rain Program, because the source had initially indicated that they were, it is likely that EPA's Clean Air Market's Division will conduct a formal applicability analysis. Such an analysis could take several months and rather than delay the progress of this permit for the analysis, the Division is proceeding with the permit. The Acid Rain requirements have not been included in the permit as it is expected that the formal applicability determination will confirm that the facility is an exempt independent power production facility under the provisions of § 72.6(b)(6). In the event that the applicability determination indicates that Brush 2 is subject to the Acid Rain Requirements, the Division will reopen the permit to include those requirements.

Other Modifications

In addition to the requested modifications made by the source, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Brush Cogeneration Partnership Operating Permit with the source's requested modifications.

Section I – General Activities and Summary

- Condition 1.1 was revised to reflect that the boilers are owned by a separate company and are addressed in a separate Title V permit. A request was submitted on November 17, 2007 to transfer ownership of the boilers at the Brush Cogeneration Facility to a separate owner.
- Removed construction permit 91MR934-2 from the list in Condition 1.3 since this permit addressed the boilers.
- Revised the language in Condition 1.4 to reflect that only the last paragraph of Section IV, Condition 3.g is state-only.
- Section IV, Condition 3.d was added as a state-only condition in Condition 1.4. Note that Section IV, Condition 3.d (affirmative defense provisions for excess emissions during malfunctions) is state-only until approved by EPA in the SIP.
- Removed Section II, Condition 2.7 (opacity) from Condition 1.4 as a state-only requirement, since this applied to the boilers, which are no longer addressed in this permit.
- Some of the citations in Condition 3.1 (PSD) were revised based on revisions made to Regulation No. 3. In addition, other minor changes were made to make the language more consistent with other permits. In addition, added the operating permit issued for the boilers at the Brush Cogeneration Facility (Brushco Farms, 07OPMR299) to the list in Condition 3.2.
- The following changes were made to the table in Condition 6.1.
 - Added a column for the startup date of the equipment.
 - Removed the boilers
 - Included the startup engine on a separate line
 - Removed the column labeled “Emission Unit Number”
 - Under the column labeled “Facility Identifier” replaced “S001” with “GT-3”

Section II.1 – Turbine, Engine and Duct Burner

- Based on EPA’s response to a petition on another Title V operating permit, minor language changes were made to various permit conditions (both in the table and the text) to clarify that only natural gas and/or diesel is used as fuel for permit conditions that rely on fuel restriction for the compliance demonstration.
- Some revisions were made to make it clear that Brush 2 only runs in combined cycle mode (turbine and duct burner). This included removing the Reg 1 PM limit for the turbine only (Condition 1.2.2). A note was added to the permit condition specifying that the PM limitation would be lower if no fuel were fired in the duct burner.

- Revised Condition 1.7 to indicate that the NO_x and CO concentrations are in ppmvd @ 15% O₂.
- Revisions were made to the requirements in NSPS Subpart GG (published in the Federal Register on July 8, 2004). These revisions provided additional monitoring options for NO_x emissions and nitrogen and sulfur content of fuel that have been previously approved by EPA as alternative monitoring. The revised NSPS does not require monitoring of the nitrogen content of the fuel if the source has not taken credit for fuel-bound nitrogen in their NO_x emission limit and does not require that fuel be sampled for the sulfur content if natural gas is used as fuel. For this source, only the NO_x emission limitation had been streamlined from the permit. With this renewal the Division has streamlined other NSPS GG requirements from the permit (in Section III.3) since other requirements are considered more stringent. No changes to the permit are necessary in Section II.1. Note that other changes will be made to the permit shield for streamlined conditions (Section III.3) of the permit.

Section II.2 – Boilers

- Removed these requirements since the boilers are now addressed in permit 07OPMR299.

Section II.3 – Cooling Water Towers

- Revised the opacity language in Condition 3.4 to more closely match the language in Reg 1. In addition, the opacity requirements (Condition 3.4) are not addressed in the table; therefore the table was revised to reflect the opacity requirements.

Section II.4 – Continuous Emission Monitoring Systems

- Condition 4.3 (data replacement requirements) was removed from the permit. The Division's Field Service's Unit considers that this requirement is not necessary; therefore it has been removed from the permit.

Section III – Permit Shield

- Removed Reg 3, Part C, Section V.C.1.b and C.R.S. § 25-7-111(2)(I) from the citation since they don't address the permit shield.
- The title for Section 1 was changed from "Specific Conditions" to "Specific Non-Applicable Requirements"
- In Section 3 (Streamlined Conditions) the following changes were made:
 - Corrected the reference to "40 CFR Part 60, Subpart GG § 60.332(a)" to "40 CFR Part 60, Subpart GG § 60.332(b)".
 - Corrected the reference to "Section V, Conditions 21.b and c" to "Section IV, Conditions 22.b and c".

- Removed Section II, Condition 2.1 for the Reg 6, Part B particulate matter standard as this applies to the boilers, which are no longer in the permit.
- Removed the recordkeeping requirements from 40 CFR Part 60 Subpart Dc § 60.48c(i) from the shield since these apply to the boilers, which are no longer in the permit.
- The permit shield for streamlined conditions (Section 3) was revised to address changes to NSPS GG (final revisions published in the Federal Register on July 8, 2004). To that end, the following revisions were made:
 - Added § 60.334(h)(3) to the table. These requirements address monitoring the sulfur content of the fuel.
 - Added § 60.334(j)(1)(iii) to the table. These requirements address NO_x excess emission reporting.

Section IV – General Conditions

- Removed the statement in Condition 3.g (affirmative defense provisions) addressing EPA approval and state-only applicability. The EPA has approved the affirmative defense provisions, with one exception and the exception, which is state-only enforceable is identified in Section I, Condition 1.4.
- The upset requirements in the Common Provisions Regulation (general condition 3.d) were revised December 15, 2006 (effective March 7, 2007) and the revisions were included in the permit. Note that these provisions are state-only enforceable until approved by EPA into Colorado's state implementation plan (SIP).
- Replaced the reference to “upset” in Condition 5 (emergency provisions) and 21 (prompt deviation reporting) with “malfunction”.
- General Condition No. 21 (prompt deviation reporting) was revised to include the definition of prompt in 40 CFR Part 71.
- Replaced the phrase “enhanced monitoring” with “compliance assurance monitoring” in General Condition No. 22.d.

Appendices

- Appendix B and C were replaced with latest version.
- The following changes were made to the tables in Appendices B and C.
 - The boilers were removed.
 - Included the starter engine on a separate line.
 - The “operating permit unit ID” for was changed from “S001” to “GT-3”.

Total HAP Emissions (tons/yr) from Brush Cogeneration Facility - Based on Highest Emission Factor for Turbines*

Emission Unit	formaldehyde	acetaldehyde	toluene	benzene	acrolein	xylene	chloroform	hexane	dichlorobenzene	nickel	cadmium	chromium	propylene	Total
BCP - Turbine	2.19	0.20	0.56	0.14	0.03	0.10								3.22
BCP - DB	0.02		9.76E-04	6.03E-04				0.52	3.44E-04	6.03E-04	3.16E-04	4.02E-04		0.54
BCP - engine	3.23E-04	2.10E-04	1.12E-04	2.56E-04	2.53E-05	7.81E-05							7.07E-04	1.71E-03
Brushco - Blrs	3.75E-03		1.70E-04	1.05E-04				0.09	6.00E-05	1.05E-04	5.50E-05	7.00E-05		0.09
BCP - Cool Twr							0.38							0.38
CPP - Turbines	6.73	0.14	0.42	0.49	0.02	0.07								7.87
Brushco - Blrs	0.01		3.91E-04	2.42E-04				0.21	1.38E-04	2.42E-04	1.27E-04	1.61E-04		0.22
CPP- Engines	3.23E-04	2.10E-04	1.12E-04	2.56E-04	2.53E-05	7.81E-05							7.07E-04	1.71E-03
CPP - Cool Twr							0.15							0.15
BIV - Turbines	4.95	0.10	0.31	0.36	0.02	0.05								5.69
BIV - Cool Twr							0.43							0.43
Total	13.90	0.34	1.29	0.99	0.07	0.22	0.96	0.82	5.42E-04	9.50E-04	4.98E-04	6.33E-04	1.41E-03	18.60

*Turbine emission factors from AP-42, CATEF and EPA's 8/22/03 Memo - for all but BCP benzene and acrolein emissions, most conservative emissions are based on EPA Memo. BCP benzene and acrolein emissions based on CATEF.

The heating value of natural gas was presumed to be 1020 Btu/scf and the heating value of diesel was presumed to be 137,000 Btu/gal

Since the turbines have the highest HAP emissions, for CPP and BIV, HAP emissions are based on the turbine only. For BCP, because of the higher fuel limit, the turbine runs 8760 hrs/yr and the duct burner for the remainder.

HAP emissions from the BIV turbines are based on the annual hours of operation multiplied by the design heat rate.